Cardboard Cat Rocket

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TOOLS:

- Bone folder (1)
- Box cutter (1)
- Drill (1)
  or awl
- Hot glue gun (1)
- Long ruler (1)
  or yardstick
- Paintbrushes (1)
  or sponges
- Pencil (1)
  or marker
- Screwdriver (1)
  optional
- String (1)
- Tape measure (1)
- Wrench (1)
  optional
- thumb tack (1)

PARTS:

- Cardboard boxes (4)
- Carpet squares (2)
- Washers (68)
- Nuts (34)
- Screws (18)
- Screws (16)
- Duct tape (1)
- Paint (1)
  in your favorite colors - I used Crayola Washable Kid's Paint

SUMMARY

No matter how many fancy cat toys they have, there is nothing in this world that makes my cats happier than a good old fashioned cardboard box. So, taking a cue from them, I designed a cat tree that turns four regular cardboard boxes into a flashy two-story cat rocket, complete with carpet for scratching and a porthole to jumping into and spying out of. And, wouldn't you know, it worked! I don't think I've ever seen my cats more excited.

My husband has a soft spot for the Tintin books from his childhood, so we painted our rocket with the trademark red and white checkerboard design that he remembers so fondly. You don't have to follow our lead, though. Feel free to paint your cat rocket to match any rocket ship you'd like!

Step 1 — Make the bottom of the rocket.
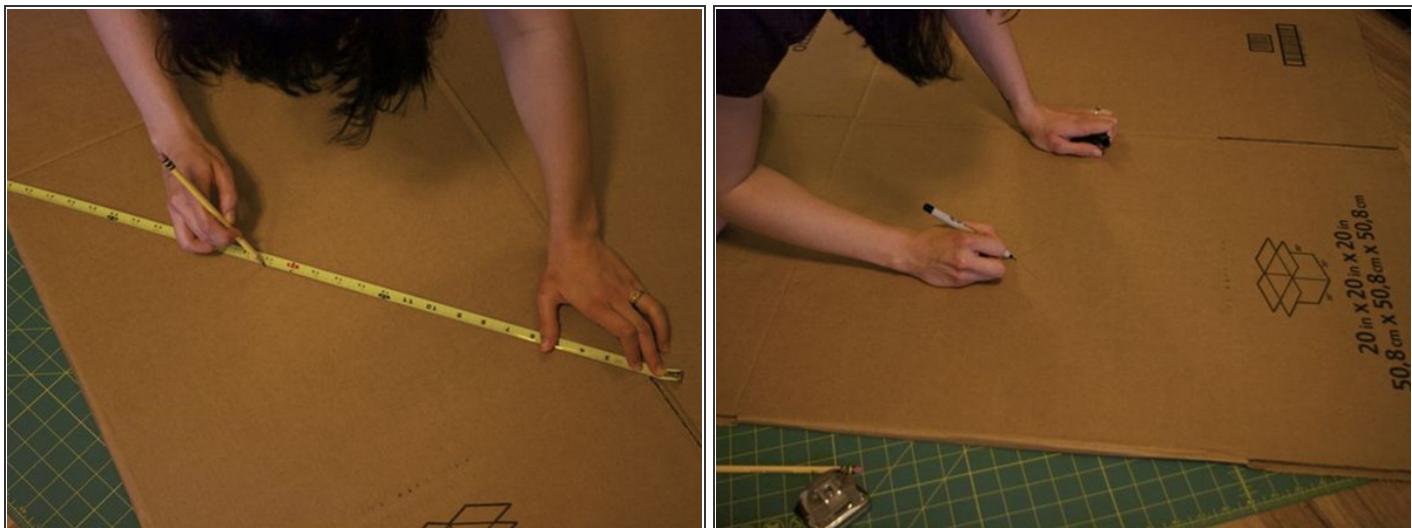
- Select the box that you will use for the bottom of the rocket and lay it flat. Find and mark the center of one side by drawing two diagonal lines from corner to corner, and making a dot where the lines cross. (Make sure you do this in pencil so you can erase the lines later.)

Step 2
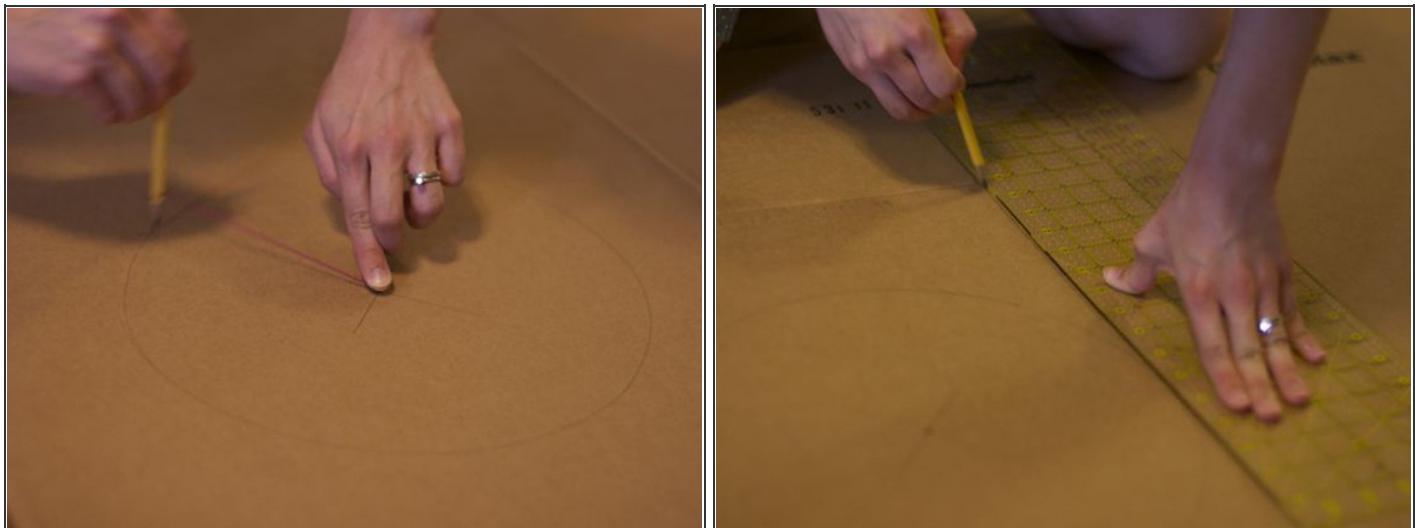
- You will create a 12" curved entrance on the side you just marked. To do this, you'll need to make a compass: Tie a piece of string around a pencil (as close as possible to the lead), and then tie a knot in the string 6" away from the pencil. Insert a thumbtack into the knot, and then stick the thumbtack into the center mark that you made in Step 1.
- Draw a 12" circle, then draw two straight lines down to the bottom of the box on either side of the circle. Finally, draw a line along the bottom edge of the box to connect the two lines you just drew across the bottom.

Step 3
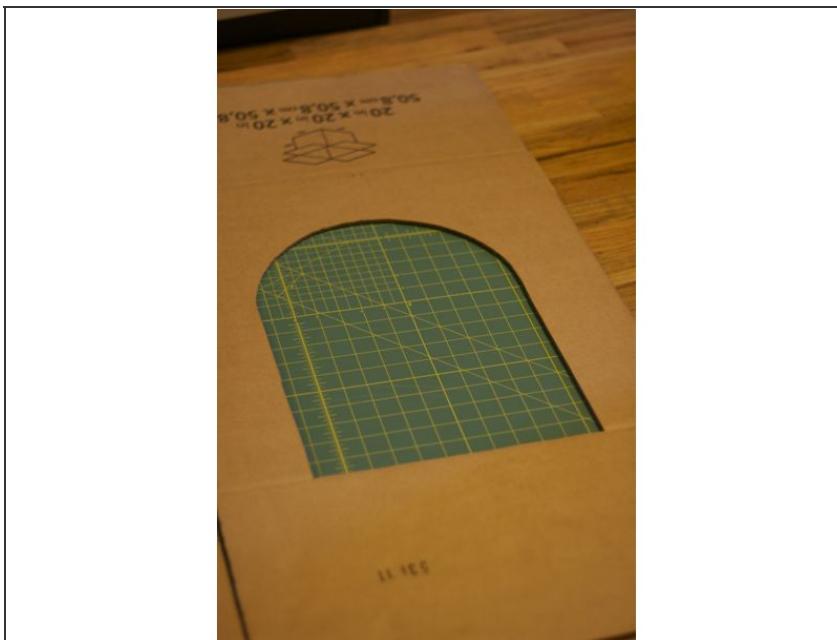
- Cut out this entrance using a box cutter. Make sure you put a cutting mat or extra layer of cardboard inside the box before cutting so you don't cut through the other side of the box.

Step 4
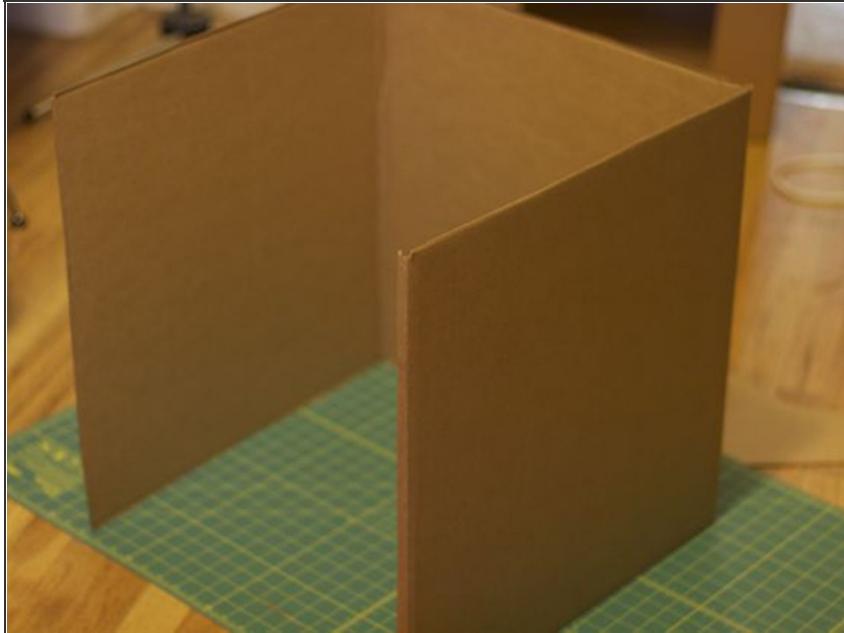
- To keep your rocket structurally sound, you'll need to line the bottom box with a second box so the walls are double-layered on three sides. To make the liner, lay the second box flat and cut off the top and bottom flaps, then remove one of the four sides.
- Set the extra pieces aside - you'll need them later.

Step 5

- Set up the bottom box so it is a fully-opened cube. (Don't tape or glue it in this shape - we'll do that later.) Insert the liner into the bottom box, taking care that the corners don't catch along the sides and rip. Place the open space on the side with the entrance. The three non-entrance sides will now be lined.

Step 6

- Facing the entrance, you will now cut a square in the top of the box, in the back left corner. (This is how the cats will get from the bottom level to the second level of the finished rocket.) Draw an 8" x 8" square on the two top flaps in this location, placing it 2" from each side of the box. Cut through both flaps to create a square opening in the top of the box.
- Set aside the bottom level.

Step 7 — Make the second level of the rocket.
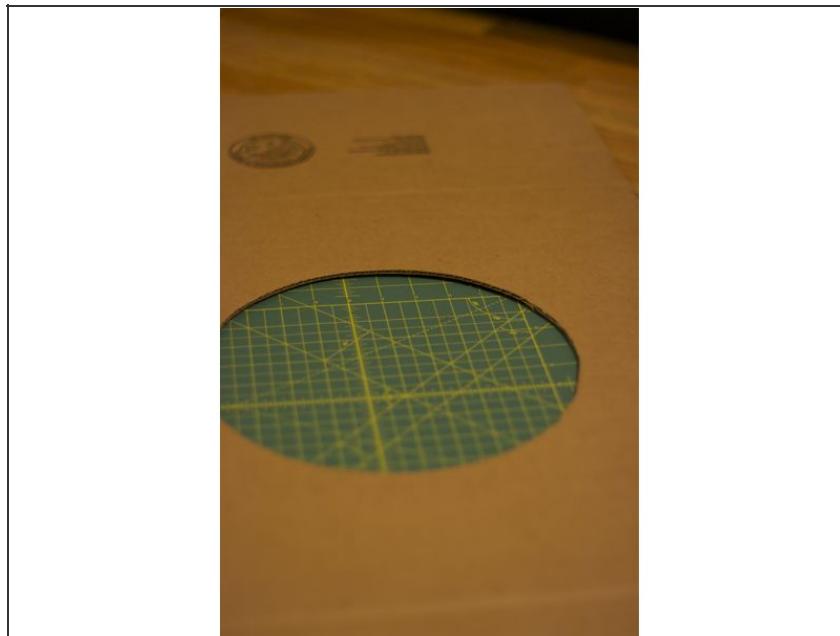
- Take the third box and lay it flat. Create a 10" porthole on one side by finding the center and drawing a circle with a string compass like you did in Steps 1 and 2. (Your string length will be 5" this time.) Cut out the porthole with a box cutter.

Step 8
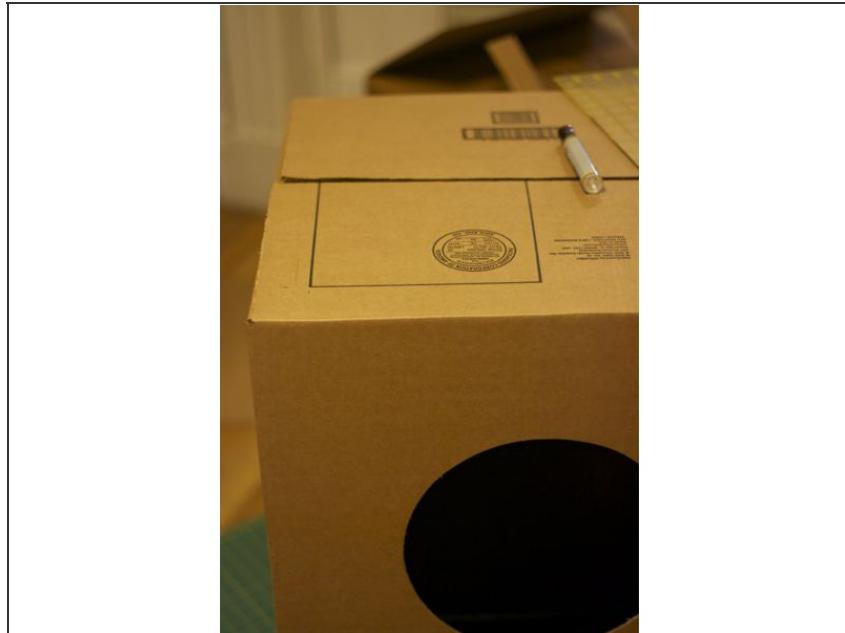
- Next, you will cut a square hole in the bottom of the second level that lines up with the square hole you cut in Step 6.

- To do this, set up the second level box so it is a fully opened cube. (Again, don't tape or glue it in this shape yet.) Place it on top of the bottom level box, lining up the porthole so that it faces in the opposite direction from the entrance on the bottom level. (The porthole will be on the front of the finished rocket and the entrance will be in the back.)

- Sticking your head into the entrance on the bottom level, trace the square you cut in Step 6 onto the flaps of the box above. Cut this square out of the two flaps of the second-level box. The openings on the top and bottom levels should now line up when the boxes are stacked.

Step 9

- We have carpet squares to place inside these boxes, but we'll need to cut that same 8" square in one of them, so the cats can get through! To do this, turn one of the carpet squares over and set the second-level box on top. Trace the square on the back side of the carpet, and cut it out with the box cutter.

Step 10 — Make the top cone.

- Now, we'll make the pointed top of the rocket. Take the third box and mark the center point on the top edge on all four sides. Starting at this point, draw a diagonal line to the bottom corner on each side, then draw a horizontal line along the bottom, creating a triangle. The four triangles you make will be the sides of your top cone.

- Before cutting them out, add a tab to each triangle by drawing a parallel line 2" out from left side of all four triangles. Shorten the tab on the top by measuring 5" down and drawing a perpendicular line to meet the side of the triangle. Do the same on the bottom, measuring 4" up and drawing a perpendicular line to meet the side of the triangle. Repeat for all four pieces, then cut out your tabbed triangles.

- All four tabs should be on the same side.

Step 11
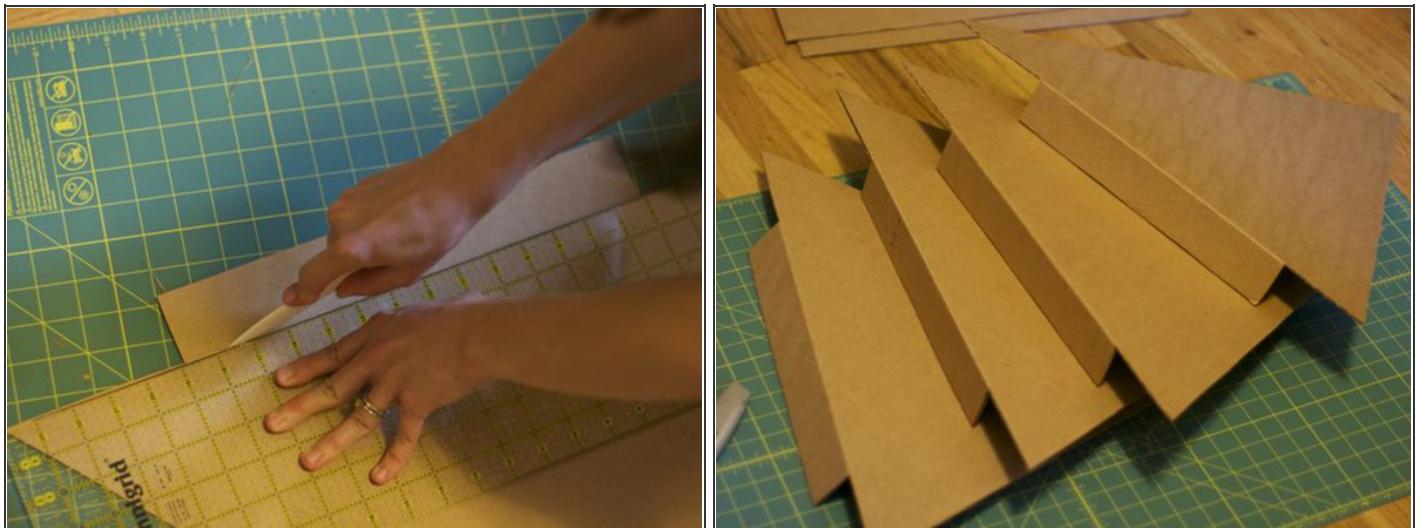
- With a bone folder, score and fold the tabs on all of the triangles so the cone will bend properly when put together. Make sure to score only the side of the tab that will be on the inside of the cone.

Step 12
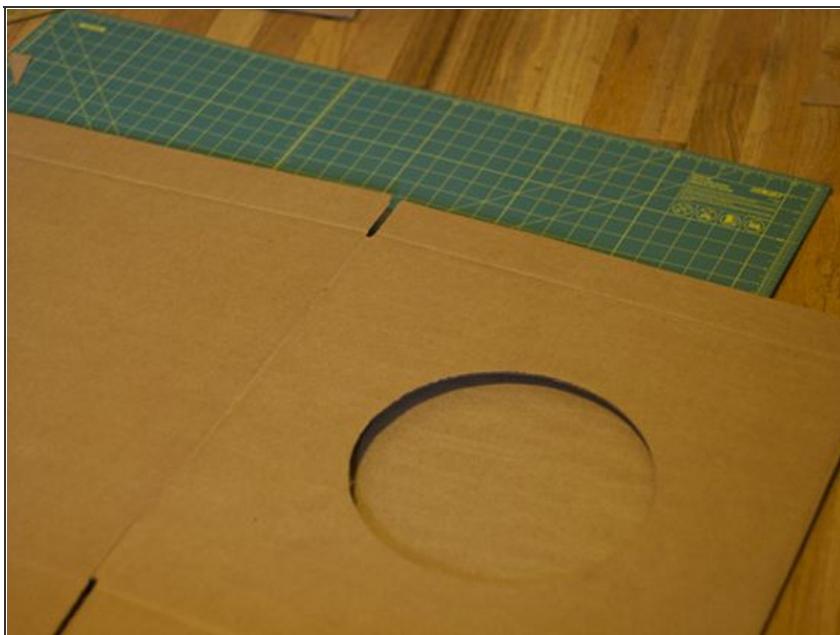
- Before you assemble the cone, you'll need to prepare the second-level box for the cone to be attached to it. Lay the second-level box flat, and then trim the top flaps so they're just 2 1/2" tall. You will attach the cone pieces to these newly-shortened flaps.

Step 13

- Now, let's build the top cone. Using one of the tabbed triangles as a template, line up the bottom of the triangle with the bottom edge of the flap and trace the angle on each side. To make sure the top flap isn't visible when you attach the cone, make it slightly smaller by moving the line you just drew in by 1/4", still using the triangle as a template for tracing. Cut flap to size using the new lines. Repeat on all 4 sides.

Step 14
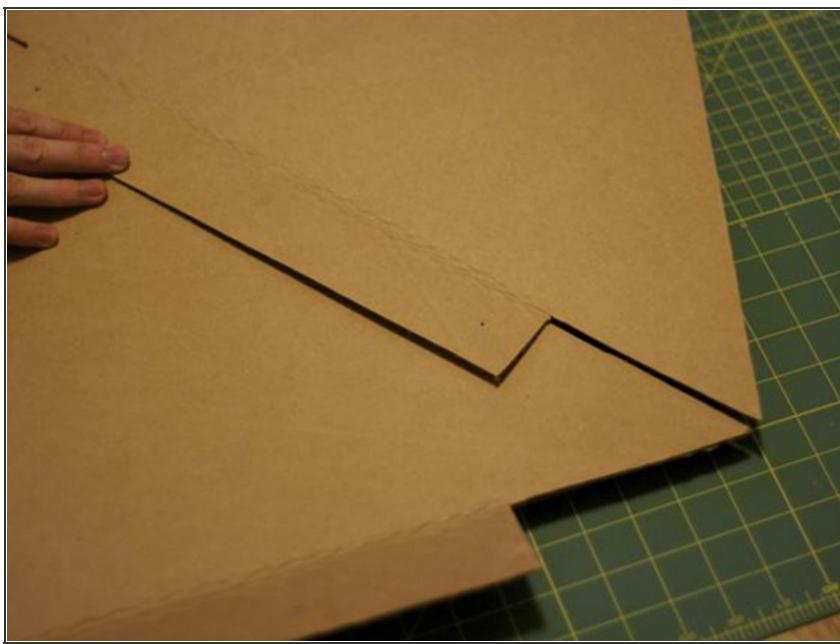
- It's time to build the cone. On the top and bottom of each triangle tab from step 10, mark your hole locations by measuring 1" toward the center of the tab and 1" up from the top and bottom edges. Each tab will have one centered hole at the top and at the bottom. Mark all four triangle tabs.

Step 15
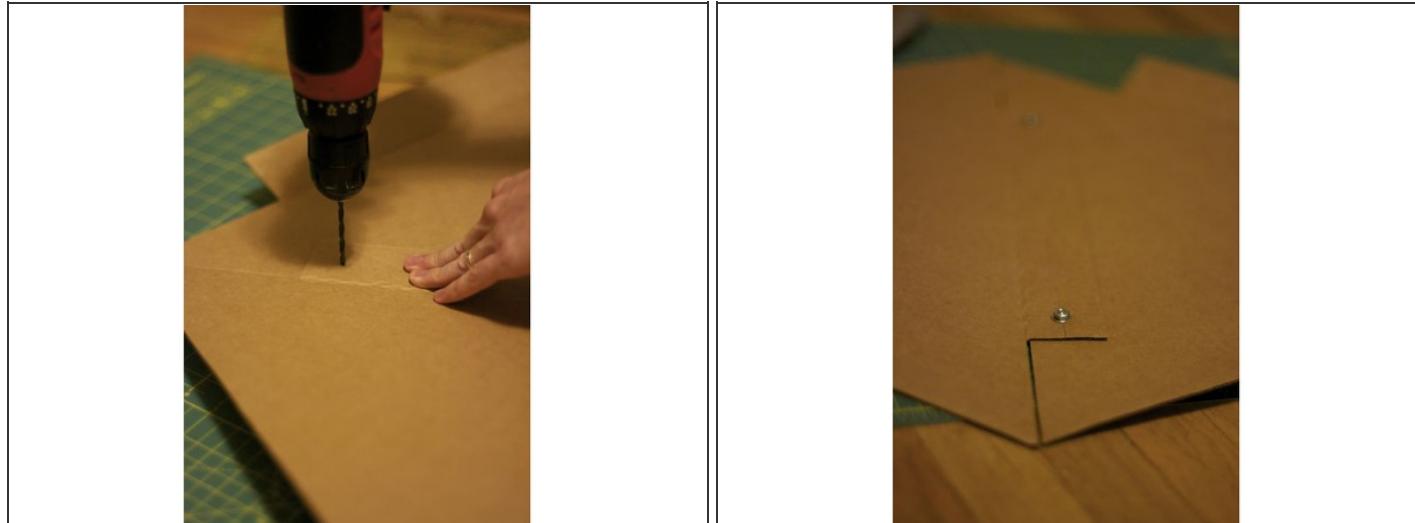
- To attach the triangles, line the tabbed edge of the first triangle up with the non-tabbed edge of the second triangle. Using a drill or an awl, make a hole through both the tab and the second triangle as marked in step 14. Using a 3/8" screw and a nut, connect the triangles through each hole, placing a washer on both the front and back sides of the screw. Once the first two triangles are connected, add the third triangle in the same way.

- I hand-tightened all of the screws and nuts in this project, but you can use a screwdriver and wrench if you prefer.

Step 16

- To attach the fourth triangle, you will need to line up and drill/punch holes in both the tabbed and non-tabbed sides before connecting it to both the third and first triangles. Once you connect the fourth triangle to each side, your cone will be fully assembled.

- Set the cone aside - it will be added last.

Step 17 — Add the fins.

- Grab three of the flaps you set aside when making the liner in Step 4. Cut each flap in half diagonally, creating 6 triangles.

Step 18
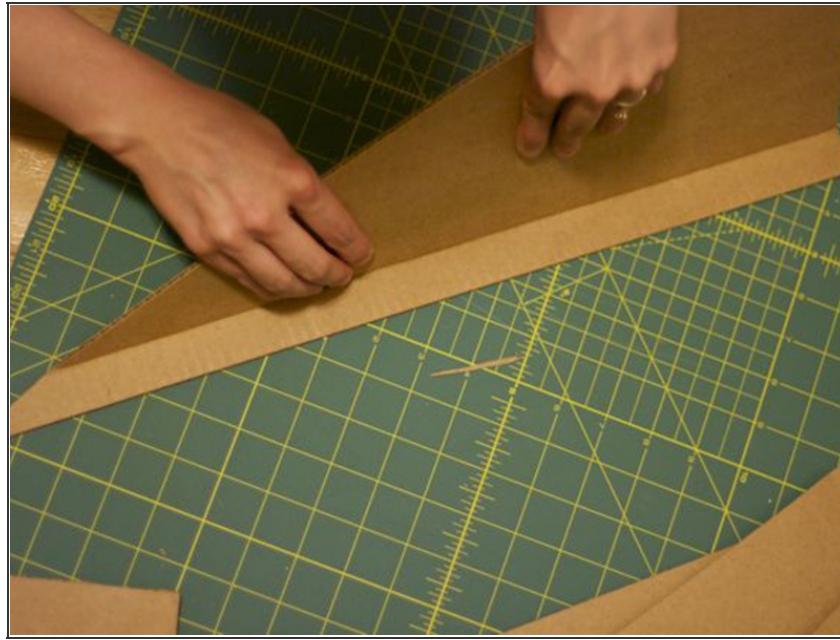
- On each long, non-diagonal side, measure in 1" and use a bone folder to score and fold a tab. You will be gluing two triangles together to make each fin, so make sure the tabs in each set fold out in opposite directions.

Step 19
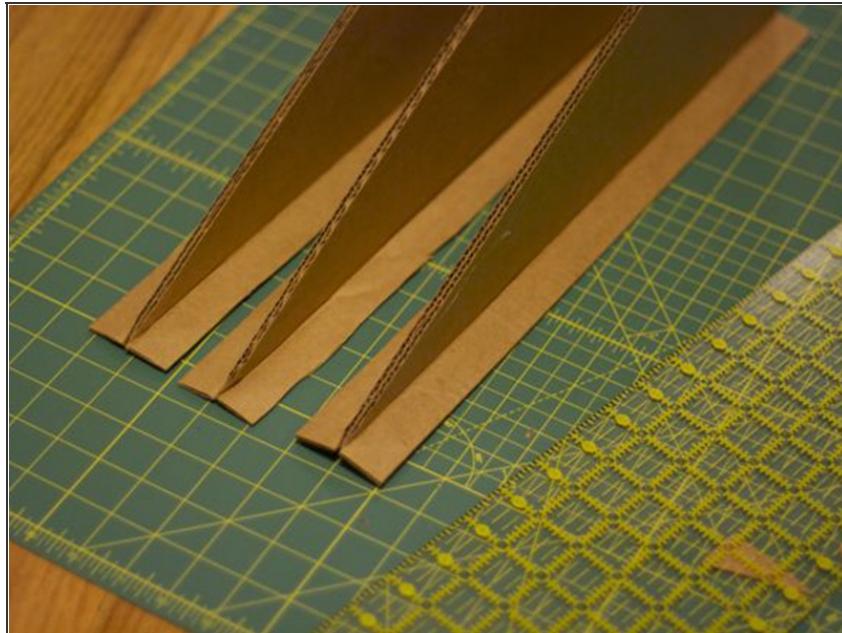
- Glue the triangles together to make the fins, then cut the extra length off of the top of each tab.

Step 20
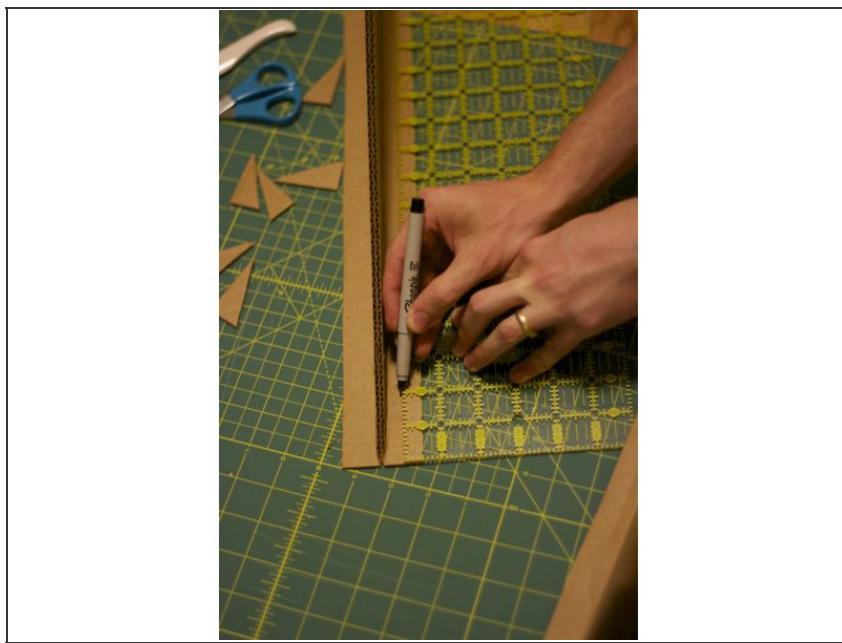
- Mark the hole location on the tabs of each fin by measuring in 1/2" toward the center of the tab, then 2" down from both the top and bottom edges.

Step 21

- Lay the assembled bottom box on its side. Find the center of the top edge on one side, then draw a vertical line down the center from top to bottom. Repeat for each of the three sides without the entrance.

Step 22
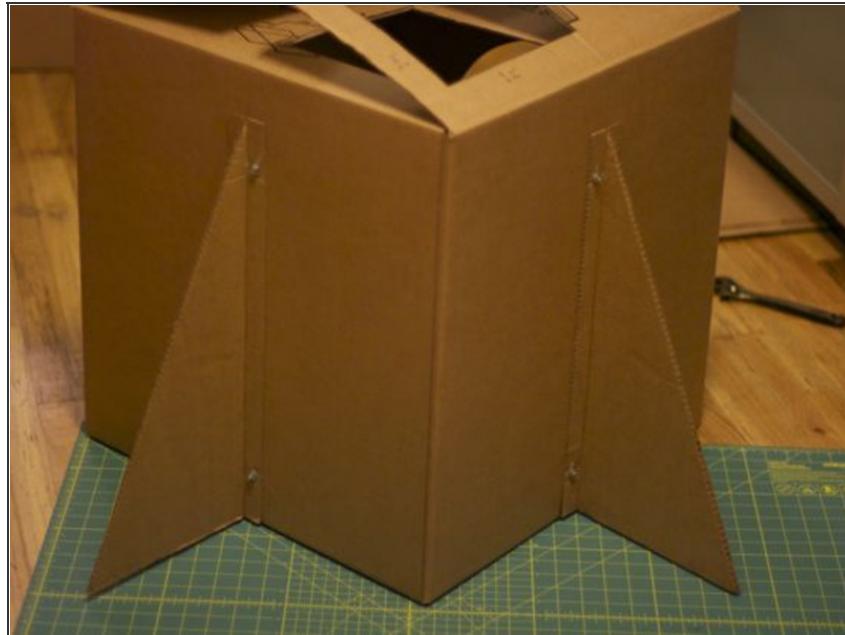
- Line a fin up on this center line so that the bottom of the fin lines up with the bottom edge of the box. Using a drill or awl, make a hole for each screw through the fin tab, box, and lining. Make all the holes on all sides before connecting the fins.

- Once all holes are made, attach the fins to all three sides using 1/2" screws and nuts, placing washers in both the front and the back of each screw. To avoid unnecessary cat-poking, the head of each screw should face the inside of the cat rocket. The fit might be a little tight, so you may need a friend to help push the layers together.

Step 23 — Attach the second level to the bottom level.

- Using duct tape, secure the top and bottom flaps of the bottom-level box in place. (Feel free to use hot glue on the bottom flaps for added durability.) Do the same for the bottom flaps on the second-level box.

Step 24
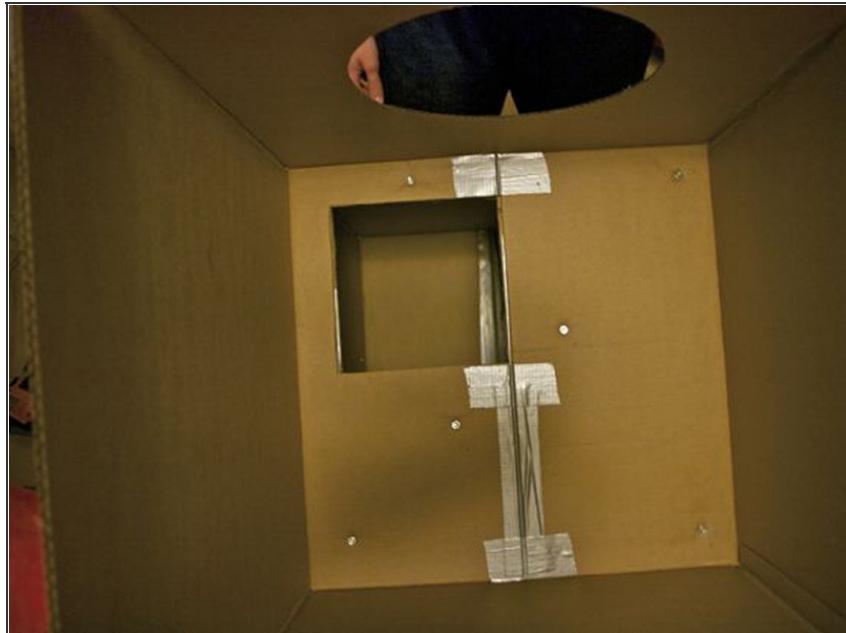
- Place the second level on top of the bottom level, lining up the square holes on the inside and the edges of the boxes on the outside. As pictured above, drill or punch holes through the top and bottom flaps (four layers). Connect the top and bottom levels with 1/2" screws and nuts, placing washers in both the front and back of each screw. Place the head of each screw in the bottom-level box, with the nut side facing up into the second-level box. (You will later cover this with a carpet square, so don't worry about cat-poking.)

- Again, it may be a tight fit, so you may want to have a friend around to help push the layers together.

Step 25 — Attach the cone to the top.

- Make sure those trimmed flaps on the top of the second-level box are folded to the inside, and then center the cone on top of the rocket. On each side, punch centered holes through both the bottom of the cone and the top flap. Reaching through the porthole for access, connect the cone to the second level on all sides with 3/8" screws and nuts, using washers on both the front and the back sides of the screws. (I placed the screw heads to the outside on these.) Attach the front side first, followed by the back, then finishing with the sides.

Step 26 — Decorate and paint.

- Take two more of the leftover flaps from Step 4 and lay them down side by side, holding them together with a little duct tape. Trace the circle that you cut out from the porthole in Step 7 onto the flaps, centering the circle over the crack where the flaps are attached. Using the string compass method, draw another circle around the one you just traced that is 2" larger.

- Cut out the ring and attach it to the porthole using 3/8" screws and nuts with a washer on each side. (Place the heads of the screws on the outside of the box this time, as shown above.) Add extra washers to the bottom of each screw as needed, so that there's no extra screw length sticking out of each nut.

- I only used 4 screws to hold my porthole frame in place, but you can use more for decoration.

Step 27
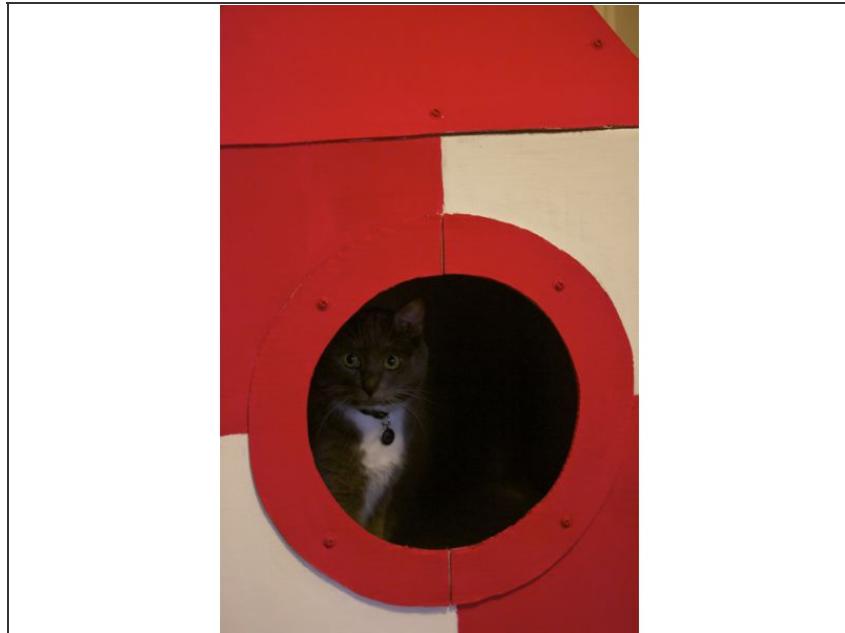
- Paint your rocket in any way that suits you. Once it's dry, insert your carpet squares into the top and bottom levels.
- If the paint warps the cardboard a bit while it's drying, remember that you can always stick things back in place later with a little hot glue.
- You're done! Sit back and let the cat games begin.

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